



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D3278-1

Job Sheet 177175



Part No: D3278-1

Job Qty: 40 ea

Part Name: Support



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 5/8/18

Job Tracking No:

Due Date: 6/4/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV C IPP: A 04.04.19 New issue KJ/JLM IPP B 07.09.06 rev.c dwg EC verified by: JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		DAS	Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time		
90	Start up Operation	40 Ea		6/4/18	0.00	0.00	Start Up Machining-2		52	18/05/13
100	Bandsaw	40 pcs		6/4/18	0.00	1.16	Bandsaw1		9.89	18/05/13
110	CNC Vertical Machining	40 pcs		6/4/18	0.06	12.55	HAAS 5 Axis			
120	Purchasing	40 pcs		6/4/18	0.00	0.00	Purchasing			CTIB-6-5
125	Packaging	40 pcs		6/4/18	0.00	0.00	Packaging2			18.06.19
130	QC	40 pcs		6/4/18	0.00	0.00	QC6			38
140	HandFinish	40 pcs		6/4/18	0.00	0.38	HandFinish1			BEB 18-06-20
150	Powdercoat	40 pcs		6/4/18	0.00	0.30	Powdercoat1			18/06/21
160	QC	40 pcs		6/4/18	0.00	0.00	QC3			38
170	Packaging	40 pcs		6/4/18	0.00	0.00	Packaging3-1			9.89
180	QC21-SA	40 Ea		6/4/18	0.00	0.00	QC21			JUN 22 2018

Part Op 100 - Cut blank: 2.00" x 1.00" x 2.550" long

Descriptions: 110 - 1- Machine as per Folio FA405 and Dwg D3278-2- Debur and Tumble Identify as D3278-1

150 - START TIME: 3:40 OVEN TEMPERATURE: 320 FINISH TIME: 4:10

170 - LOCATION : GA

8052632
80 X 0.868
8070387

Metcc PO: P0040110

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M6061T6B1.000X02.000	6061-T6 Bar 1.00 X 2.00	8.6800 ft (.217 ea)	90-Start up Operation	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	M6061T6B1.000X02.000	9	41	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Support	0.098inches + 0.005 - 0.000	0.103 0.098		
2	Support	0.359inches ± 0.005	0.364 0.354		
3	Support	0.609inches ± 0.010	0.619 0.599		
4	Support	0.250inches ± 0.010	0.260		

DQA:

QA Clc

Worl

Date



DATE

Work Order update only ☐

AGAINST DEPARTMENT/PROCESS

Cross tube	☐	Water Jet	☐	Engineering	☐
Small Fab	☐	Prod. Eng. Coord.	☐	Quality	☐
Finishing	☐	Rec/Store/Packaging	☐	Other	☐
Composite	☐	Supplier	☐		

MRB (QSI042) Approval

Disposition

Completed By

Lead hand / Supervisor
Approval VerificationQC / QA Coordinator
Approval

Part: D3278-1
Job No: 177175
Serial No/Batch: S070870
Revision:
Inspector:



UMET Aerospace Ltd.
 1270 Aberdeen Street
 Newbury, ON K5A 1K7
 CANADA
 TEL.: 613 632-5200
 Email: sales@dartaero.com
 www.dartaerospace.com

Date: 06/13/18

Root Cause

Environment	☐	No Re-verification	☐
Design	☐	Operator	☐
Doc/Data	☐	Offset/Setup	☐
Equip/Tooling	☐	Supplier	☐
Handling/Pre	☐	Training	☐
Material	☐	Use for Testing	☐
Internal Transport	☐	Poor Information	☐
Tribal Knowledge	☐	Rushing	☐
LOA	☐	Product Improvement	☐
Substation	☐	Process Improvement	☐
Past Expiry Date	☐	Manufacturing Process	☐
Misidentified	☐	Past Due	☐

☐ Pressure/Forced
☐ Bending
☐ Centre Not Concentric
☐ Cracks
☐ Crimp/Kink/Ripple/Wave
☐ Cuffs
☐ Crushing
☐ Heat Treat
☐ Wave/Twist in Tube
☐ Marks/Chatter

FAULT CATEGORY

☐ Temperature/Cure
☐ Set-up
☐ BOM/Route
☐ Broken/Damage/Defect
☐ Inspection Incomplete/Unqualified
☐ Contamination
☐ Countersink
☐ Cut Too Short
☐ Instructions Incomplete/Unclear
☐ Drill Holes

☐ Power Loss/Surge
☐ Folio/Program
☐ Grain
☐ Weld
☐ Wrong Stock Pulled
☐ Out of Sequence
☐ Off-set
☐ Mislabeled
☐ Fit/Function
☐ Misaligned/off center

☐ Positioned Wrong
☐ Outside Dimensions
☐ Over/Under tolerance
☐ Part Incorrect
☐ Part Lost/Missing
☐ Part Moved
☐ Drawing
☐ Finish
☐ Misread
☐ Turning Sequence

OTHER :

			0.240
5	Support	1.480inches $\pm$ 0.005	1.485 1.475
6	Support	0.125inches $\pm$ 0.010	0.135 0.115
7	Support	0.119inches + 0.005 - 0.004	0.124 0.115
8	Support	2.439inches $\pm$ 0.010	2.449 2.429
9	Support	1.980inches $\pm$ 0.010	1.990 1.970
10	Support	0.130inches $\pm$ 0.030	0.160 0.100
11	Support	0.257inches + 0.005 - 0.000	0.262 0.257
12	Support	0.375inches $\pm$ 0.010	0.385 0.365
13	Support	0.875inches $\pm$ 0.010	0.885 0.865
14	Support	0.500inches $\pm$ 0.010	0.510 0.490
15	Support	0.400inches $\pm$ 0.010	0.410 0.390
16	Support	1.000inches $\pm$ 0.030	1.030 0.970
17	Support	1.720inches $\pm$ 0.010	1.730 1.710
18	Support	0.125inches $\pm$ 0.010	0.135 0.115
19	Support	0.125inches $\pm$ 0.010	0.135 0.115

Plex 5/8/18 10:24 AM Dart.lajeunesse.marie

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

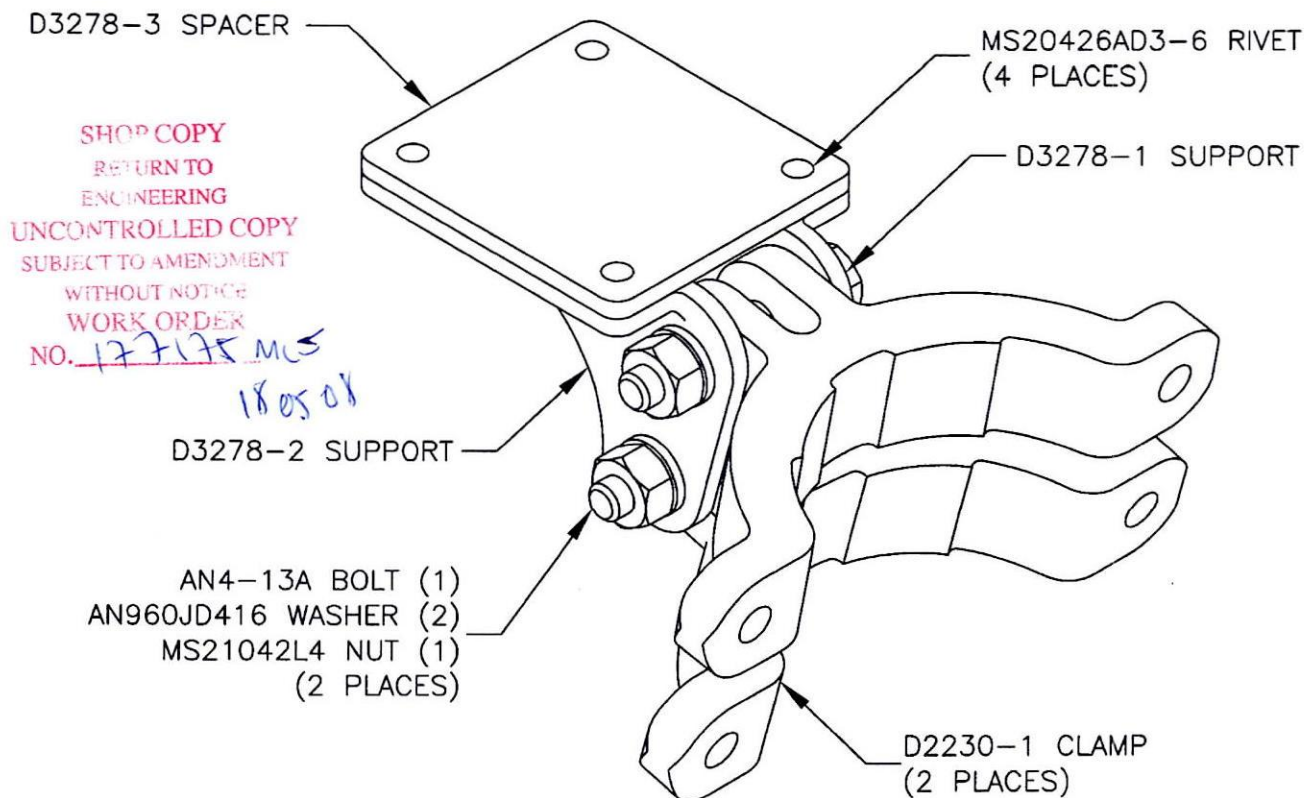
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER :							



DESIGN <i>97</i>	DRAWN BY <i>BC</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>B</i>	APPROVED <i>H</i>	DRAWING NO. D3278	REV. C SHEET 1 OF 3
DATE 07.07.24		TITLE SUPPORT ASSEMBLY	SCALE NTS
A	04.03.03	NEW ISSUE	
B	05.03.31	CHANGE DIM/TOL TO ENSURE FIT	
C	07.07.24	CHANGED RIVETS PER PAR #185	

RELEASED
07-08-08

D3278-041 SUPPORT ASSEMBLY



Qty	Part Number	Description
X	D3278-041	SUPPORT ASSEMBLY
2	D2230-1	CLAMP
1	D3278-1	SUPPORT
1	D3278-2	SUPPORT
1	D3278-3	SPACER
2	AN4-13A	BOLT
4	AN960JD416	WASHER
4	MS20426AD3-6	RIVET
2	MS21042L4	NUT

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

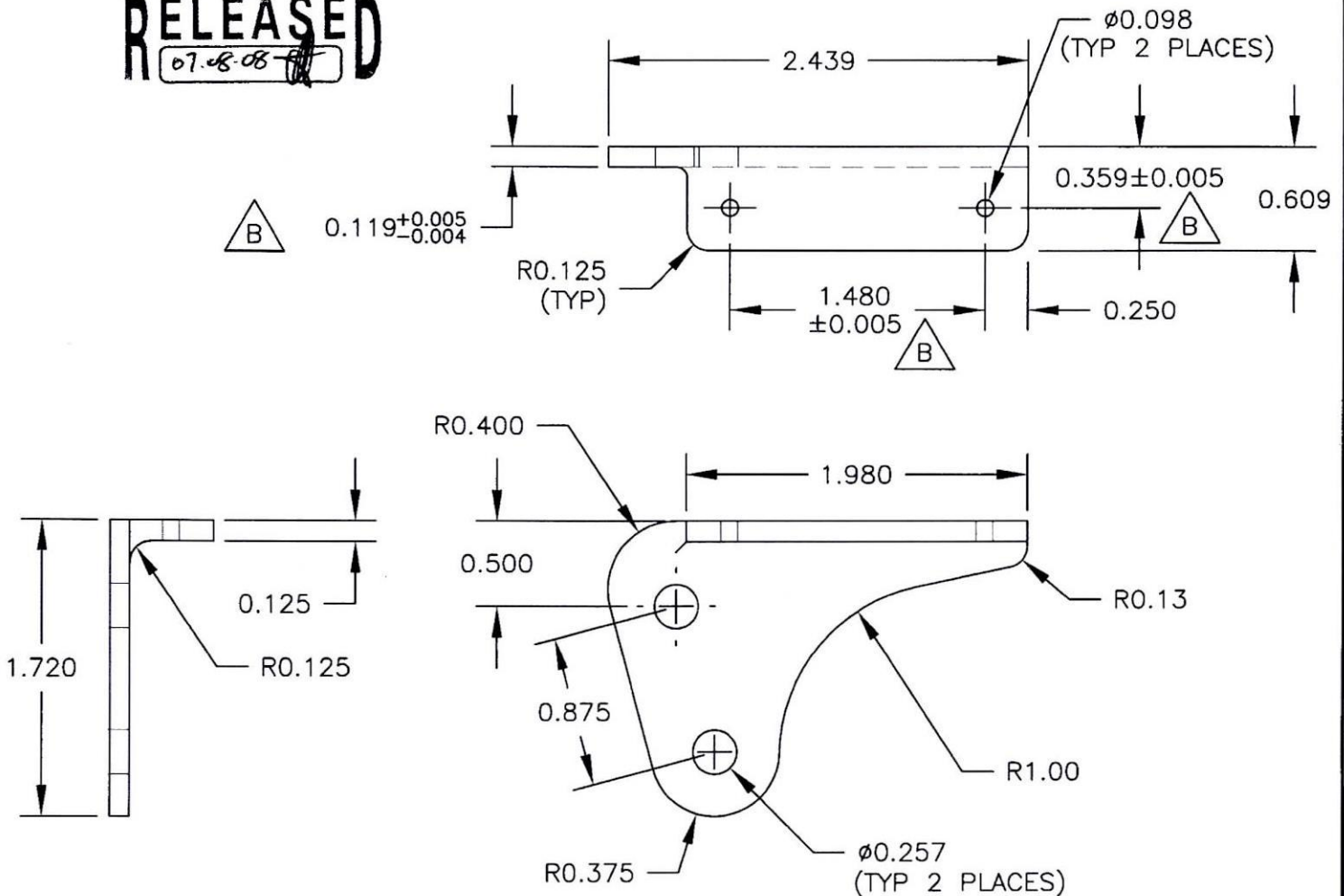
Work Order update only ☐

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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
				Completed By					
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design ☐	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data ☐	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling ☐	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
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Substation ☐	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date ☐	☐	Manufacturing Process	☐	OTHER :			
Misidentified ☐	☐	Past Due	☐				

DART

DESIGN <i>qp</i>	DRAWN BY <i>dc</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>B</i>	APPROVED <i>H</i>	DRAWING NO. D3278	REV. C SHEET 2 OF 3
DATE 07.07.24	TITLE SUPPORT ASSEMBLY		SCALE 1:1

RELEASED
07.08.08**D3278-1 SUPPORT (SHOWN)****D3278-2 SUPPORT (OPPOSITE)**

- 1) MACHINE PER DWG FILE "D3278-1.SLDPRT"
- 2) MATERIAL: 6061-T6 (OR 6061-T651/T6510/T6511/T62) BAR
PER AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
PER AMS-QQ-A-200/8 (OR AMS 4160)
(REF. DART SPEC. M6061T6B)
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

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WORK ORDER NON-CONFORMANCE / UPDATE

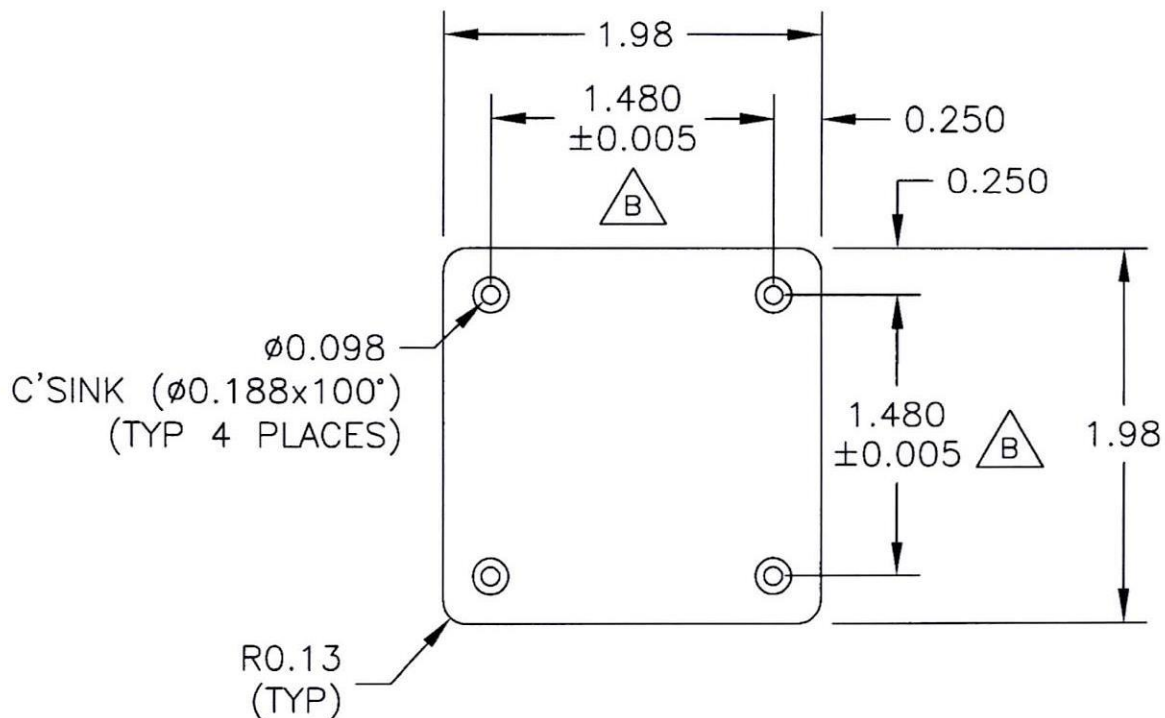
QA Closed: _____ Date: _____

Work Order update only ☐

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Part Incorrect ☐																																																																									
Part Lost/Missing ☐																																																																									
Part Moved ☐																																																																									
Drawing ☐																																																																									
Finish ☐																																																																									
Misread ☐																																																																									
Turning Sequence ☐																																																																									
OTHER :																																																																									

DART

DESIGN <i>GP</i>	DRAWN BY <i>SC</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3278	REV. C SHEET 3 OF 3
DATE 07.07.24	TITLE SUPPORT ASSEMBLY		SCALE 1:1

RELEASED
07.08.08**D3278-3 SPACER**

- 1) MATERIAL: DELRIN II 150E OR ACETRON GP ACETAL
(REF. DART SPEC. M-DELRIN-B0.125x2.000) OR
DELRIN II 150E OR ACETRON GP ACETAL
(REF. DART SPEC. M-DELRIN-S.125)
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

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DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐	Power Loss/Surge ☐	☐	Positioned Wrong ☐															
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐	Folio/Program ☐	☐	Outside Dimensions ☐															
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐	Grain ☐	☐	Over/Under tolerance ☐															
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐	Weld ☐	☐	Part Incorrect ☐															
Handling/Pre ☐	☐	Training ☐	☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐	Wrong Stock Pulled ☐	☐	Part Lost/Missing ☐															
Material ☐	☐	Use for Testing ☐	☐	Cuffs ☐	☐	Contamination ☐	☐	Out of Sequence ☐	☐	Part Moved ☐															
Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐	Off-set ☐	☐	Drawing ☐															
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐	Mislabeled ☐	☐	Finish ☐															
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐	Fit/Function ☐	☐	Misread ☐															
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐	Misaligned/off center ☐	☐	Turning Sequence ☐															
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER :																					
Misidentified ☐	☐	Past Due ☐	☐																						



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO040110

Supplier: MEM001-VC
Metec Metal Technology Inc.
20 Terry Fox Drive PO Box 781
Vankleek Hill
ON
K0B 1R0 Canada
Phone: 613 678 3957
Fax: 613 678 3956

Attention: Walz, Shigi

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO040110

PO Date: 6/5/18

Due Date: 6/15/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Tsimiklis, ChrisoulaPhone:

Via: Ground

Pynt Terms: Net 60

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	177175	D3278-1	Support	Firmed	6/15/18	40 pcs	0 pcs	40 pcs	\$23.20/pcs	\$928.00
2	177177	D3278-2	Support	Firmed	6/15/18	40 pcs	0 pcs	40 pcs	\$23.20/pcs	\$928.00
3	177178	D3404-1	Ground Handling Wheel Lug	Firmed	6/15/18	40 pcs	0 pcs	40 pcs	\$29.90/pcs	\$1,196.00
Grand Total:										\$3,052.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retension of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 6/8/18 11:26 AM dart.tsimiklis.chrisoula



20 Terry Fox Drive
Vankleek Hill, Ontario K0B 1R0 , Canada
Tel: (613) 678-3957
Fax: (613) 678-3956

Delivery Slip No.: 22789

Date: Jun 15, 2018

Page: 1

Sold to: Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, Ontario K6A 1K7	Ship to: Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, Ontario K6A 1K7
Order No.: PO040110	Sold By: Walz, Christian D.
Shipped By: pick up	Ship Date: Jun 15, 2018

Description	Bin Loc	Unit	Quantity ordered	Quantity shipped	Quantity on B/O
✓ D3278-1 Support, as per drawing D3278 Rev C unpainted		Each	40	40	
D3278-2 Support, as per drawing D3278-2 Rev C unpainted		Each	40	39	
D3404-1 GHW/Lug, as per drawing D3404-1 Rev C unpainted		Each	40	40	
The delivered goods must be inspected upon receipt to confirm compliance. Should there be discrepancies please notify METEC within 30 days of delivery. The goods are otherwise deemed accepted.					

Date
38
9-89

Received by _____

Thank you for your order!



20 Terry Fox Drive, Vankleek Hill, Ontario K0B 1R0
Tel. (613) 678-3957 & (613) 678-2782 Fax (613) 678-3956 metec@metec.ca

CERTIFICATE OF CONFORMITY

SOLD TO:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, Ont.
K6A 1K7

SHIPPED TO:

same

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>PART NAME</u>	<u>BATCH NUMBER</u>	<u>P.O. NUMBER</u>
40	D3278-1	Support	5047296	40110
39	D3278-2	Support	5047296	40110
40	D3404-1	Ground Handling Wheel Lug		40110

Material supplied by DART

We hereby certify that the above parts were made in conformance with applicable drawings.

JAS
38
9-89

METEC Metal Technology Inc.

Heather Nixon, June 15, 2018

Vankleek Hill, May 25, 2018